

Headquarters U.S. Air Force

Integrity - Service - Excellence

T&E of Emerging Technology Government and Industry



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7 Mar 2017
Version #1**



Current Testing



Breaking Barriers ... Since 1947



...But What About This?



How Do We Test This?

What Does Right Look Like?



Drivers - The Threat Environment

FASTER



ADAPTABLE



SURVIVABLE



AFFORDABLE



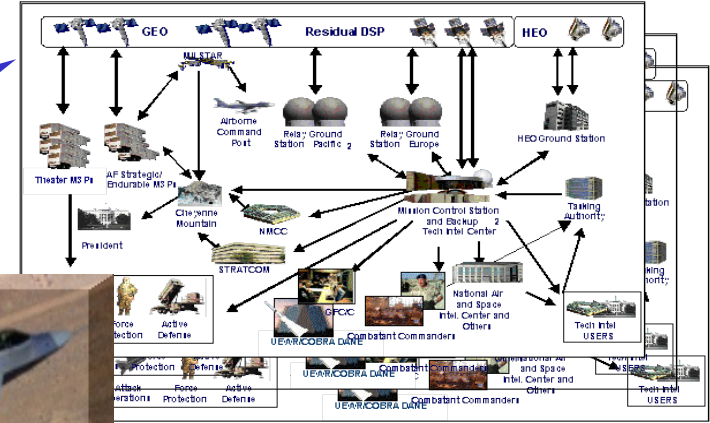
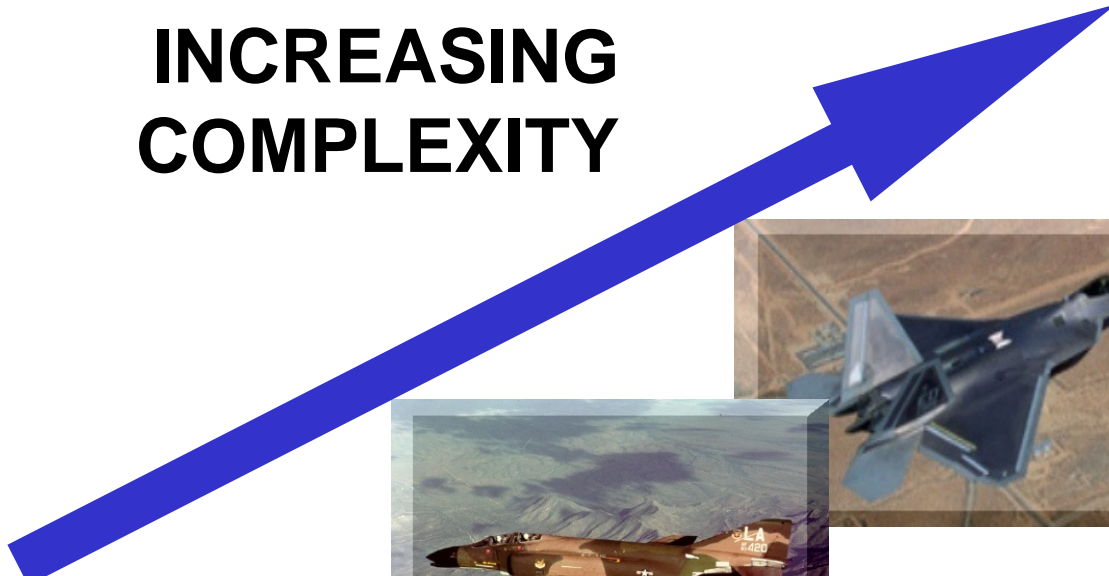
Breaking Barriers ... Since 1947



Today's Environment

Requirements, Acquisition, T&E and Cyber Challenges

INCREASING COMPLEXITY



- Emerging technologies
- Systems-of-systems
- Highly dependent on IT & software
- Cybersecure & interoperable
- Delivered quicker
- Delivered in Increments
- How to test?



Future Test Challenge

Autonomy

- How should the “spectrum” of autonomy be defined?
 - Cognitive vs adaptive
- How do we test systems that learn?
 - What is industry doing that USAF could leverage?
 - Effects based testing or process as well?
 - Are they learning the right lessons?
 - Are they learning them quickly enough to be effective?





Current Test Challenge

Cyber

- Evolving and rapidly growing need
- Approaches are time consuming and have a high manpower demand
- Where can automated tools be leveraged for cyber testing?
- What techniques are used in industry?
- What are meaningful measures to communicate cyber vulnerability and survivability?





Future Test Challenge

Directed Energy

- Current tests are primarily set up for technology development vs operational employment
- What changes are needed in test approach and infrastructure to do an operational assessment to include suitability?
- What does right look like? How are requirements defined?

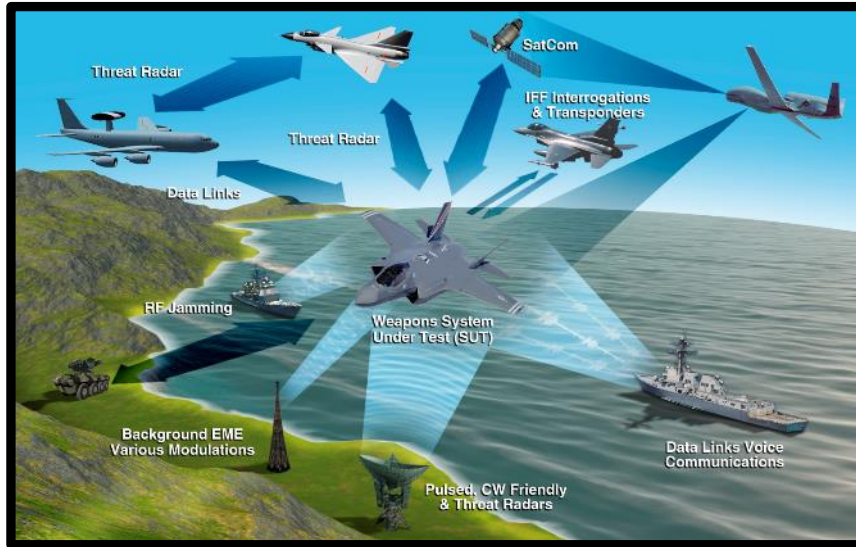


MDA image provided to Aviation Week



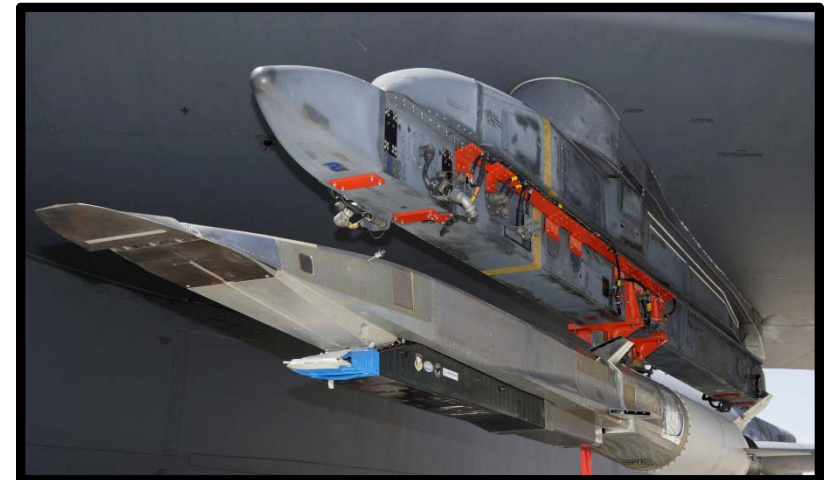


Other Technologies



- **Electronic Warfare**
 - **Threat Representation**
 - **Range Limitations**

- **Hypersonics**
 - **Test Infrastructure**
 - **Test Fleet Challenge**
 - **Range Challenges**





Government & Industry Partnering

- **Early Involvement of Test/Ops Community**
 - **Education two way street**
 - **Know the technology / Know the CONOPS**
 - **Early design of test strategy**
 - **Leverage existing industry tool sets**
 - **Modeling and simulation collaboration**
 - **Automated test tools**
 - **Continuum of testing – Contractor DT, DT, OT**
 - **Marketing ↔ Requirements ↔ Testing**
-



Relevance



Protect the Homeland

Build Security Globally

Project Power and Win Decisively

Breaking Barriers ... Since 1947



Backups



“It’s Just a Sensor”...



Need to understand technology and what it means



The Need for Testing

DEMO



FIELDABLE
SYSTEM

Advance the
technology



DOTmLPF-P